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United States  
Department of  
Agriculture

Soil  
Conservation  
Service

Spokane,  
Washington



in cooperation with

Department of Ecology  
State of Washington

STA/STA

# Water Supply Outlook for Washington

as of MAY 1, 1983



## TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO: Fresh powder snow on Elephant Mountain, near the  
West Fork of Hyalite Creek, in Montana.

## PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504
Arizona	Room 3008, Federal Building, 230 N. First Ave., Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno, Nevada 89505
Oregon	1220 S. W. Third Ave., Portland, Oregon 97204
Utah	4420 Federal Bldg., 125 South State St., Salt Lake City, Utah 84138
Washington	360 U. S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82602

## PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Snow Surveys Branch, California Department of Water Resources, P.O. Box 388, Sacramento, California 95802 --- for British Columbia by the Ministry of the Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia V8V 1X5 --- for Yukon Territory by the Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory Y1A 3V1 --- and for Alberta, Saskatchewan, and N.W.T. by the Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W., Calgary, Alberta T3C 1A6.



# **WATER SUPPLY OUTLOOK FOR WASHINGTON**

and  
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

*Issued by*

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SOIL CONSERVATION SERVICE  
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STATE OF WASHINGTON

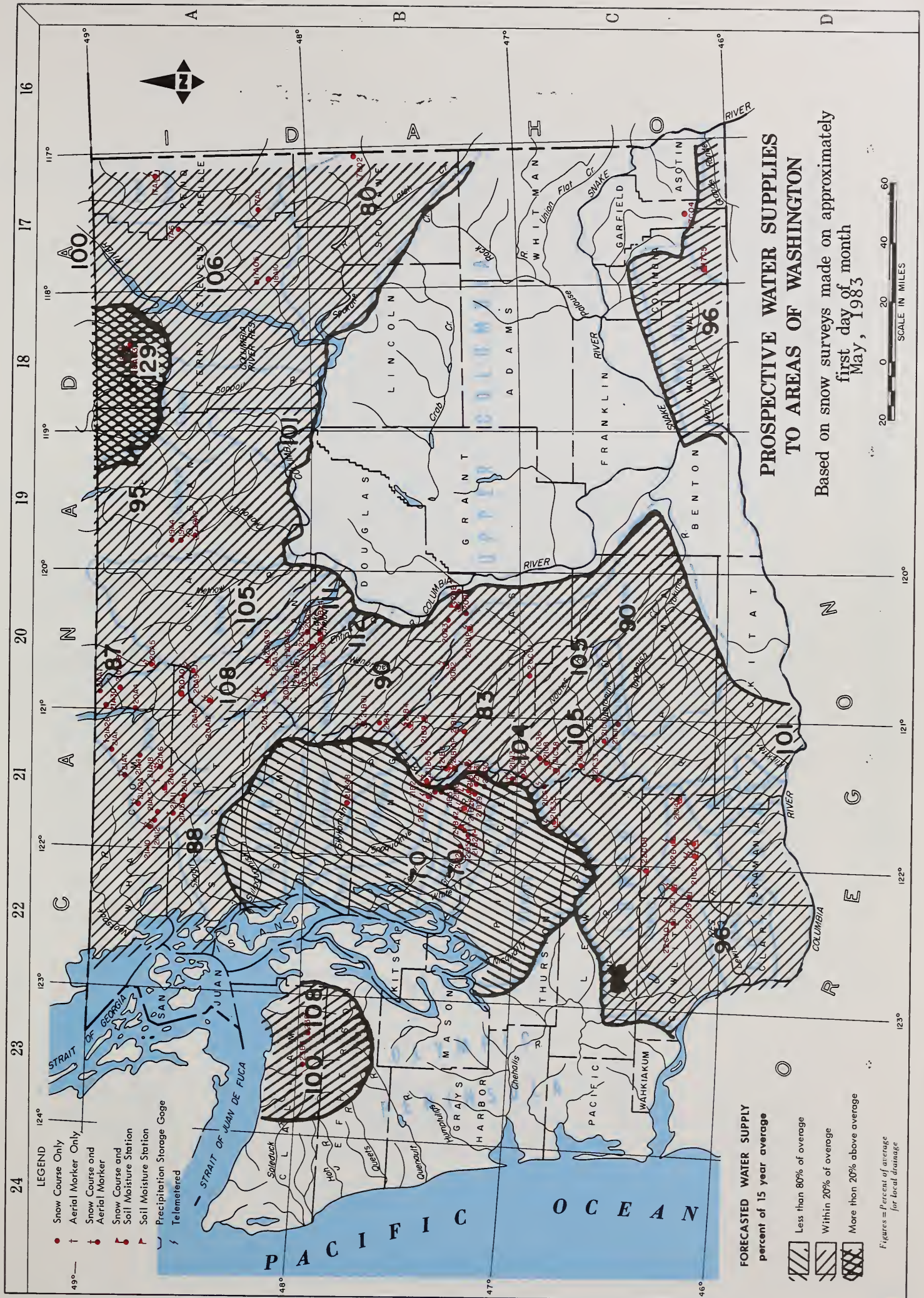
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*Report prepared by*

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SOIL CONSERVATION SERVICE  
360 U.S. COURTHOUSE  
SPOKANE, WASHINGTON 99201





INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.	NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
UPPER COLUMBIA DRAINAGE						LOWER COLUMBIA DRAINAGE					
Boyer Mountain Bunchgrass Meadow	17A2	7	31N	43E	5250	Spruce Springs	17C4	9	8N	40E	5700
	17A1SP	24	37N	44E	5000		17C5SP	6	7N	40E	5530
Summit G. S.	18A7	20	39N	35E	4600	June Lake Pine Fire Shelter Plains of Abraham Spencer Meadow Surprise Lakes	22C09SP	26	8N	5E	3200
	17B02	12	27N	45E	3333		22C26SP	8	9N	7E	3800
Rugged Ridge	17A6	19	36N	42E	3215	Coyuse Pass Pigtail Peak Potato Hill Sheep Canyon Strawberry	22C13SP	35	9N	5E	4400
	17A5	26	31N	38E	4990		22C20SP	16	8N	7E	3400
Beard Stranger Mountain Toga	18A10	6	29N	38E	3370		22C08SP	9	10N	6E	3280
UPPER COLUMBIA DRAINAGE						LOWER COLUMBIA DRAINAGE					
Mullan Creek No. 1	19A1	30	37N	24E	5700	Cowlitz River	21C6	15	16N	10E	5300
	19A4	19	37N	24E	6000		21C33SP	11	13N	11E	5900
Salmon Meadows	19A2SP	33	37N	24E	4500	Lewis River	21C14SP	36	10N	10E	4500
	20A39	30	31N	18E	5600		22C10SP	12	8N	4E	4050
Harts Pass	20A5SP	7	37N	18E	6500		22C08SP	9	10N	6E	3280
UPPER COLUMBIA DRAINAGE						LOWER COLUMBIA DRAINAGE					
Lyman Lake	20A23SP	18	31N	16E	5900	Coyuse Pass Pigtail Peak Potato Hill Sheep Canyon Strawberry	22C09SP	26	8N	5E	3200
	20A12SP	18	34N	16E	4600		22C26SP	8	9N	7E	3800
Park Creek Ridge	20A9SP	21	35N	17E	4780		22C13SP	35	9N	5E	4400
	20A39	30	31N	18E	5600		22C20SP	16	8N	7E	3400
Brief	20B19	34	28N	19E	1600		22C08SP	9	10N	6E	3280
	20A33a	28	31N	17E	4540						
Enfiah River Trail	20A34a	2	29N	17E	3325	Cowlitz River	21C6	15	16N	10E	5300
	20A36a	17	30N	18E	6510		21C33SP	11	13N	11E	5900
Pope Ridge	20B20	22	29N	18E	3540		21C14SP	36	10N	10E	4500
	20B24SP	22	29N	18E	3540		22C10SP	12	8N	4E	4050
Pope Ridge Snow Pillow	20A32a	34	30N	18E	6725		22C08SP	9	10N	6E	3280
	20A37	20	29N	19E	6200						
Shady Pass	20A35a	21	30N	17E	3910	Green River	21B24P	18	20N	11E	1800
	20A35a	21	30N	17E	3910		21B25	27	21N	8E	1200
Tommy Creek	20B21a	10	28N	18E	4900		21B42SP	21	21N	9E	3200
							21B27	14	20N	8E	2900
Wenatchee River	21B41SP	13	26N	14E	3240	Cowlitz River	21C6	15	16N	10E	5300
	20B2SP	35	22N	17E	4270		21C33SP	11	13N	11E	5900
Blewett Pass No. 2	21B1SP	14	26N	13E	4070		21C14SP	36	10N	10E	4500
	20B25SP	10	20N	20E	5310		22C10SP	12	8N	4E	4050
Trough #2							22C08SP	9	10N	6E	3280
Beehive Springs	20B3	12	21N	19E	4400	Cedar River	21B3	10	21N	10E	2390
							21B2IP	30	22N	10E	3300
Stemilt Slide	20B6	30	21N	20E	5000	Snoqualmie River	21B48	31	27N	9E	3500
	20B7SP	30	21N	20E	4400		21B2P	19	22N	11E	3625
Upper Wheeler							21B55SP	20	22N	11E	3700
Ahtanum R. S.	21C11	24	12N	14E	3100	Skagit River	21A4	35	39N	12E	2200
	21B9SP	35	23N	14E	3200		21A1	9	39N	12E	3680
Big Boulder Creek	21C8P	23	16N	12E	3450	Beaver Creek Trail	21A28a	26	40N	12E	6000
	21C36	13	16N	12E	3400		20A4	34	38N	16E	5900
Bumping Lake New	21C38SP	9	15N	12E	4600	Devils Park	20A1	14	40N	14E	3500
	21B4SP	28	24N	14E	3371		20A38	8	40N	16E	5000
Fish Lake	21C10SP	3	12N	13E	6000	Freezeout Creek Trail	20A06	25	36N	16E	3500
	20B11SP	29	21N	19E	5385		20A38	8	40N	16E	5000
Grouse Camp	21B14M	15	20N	14E	2200	Freezeout Meadows (New)	20A06	25	36N	16E	3500
	21C17SP	6	16N	11E	5400		20A38	8	40N	16E	5000
Lake Cle Elum	21B8P	13	21N	11E	2450	Meadows Cabins	21A30	19	40N	14E	2800
							20A07	10	35N	14E	4200
Tunnel Avenue						New Hozomeen Lake					
White Pass (East Side)						Thunder Basin					

Baker River

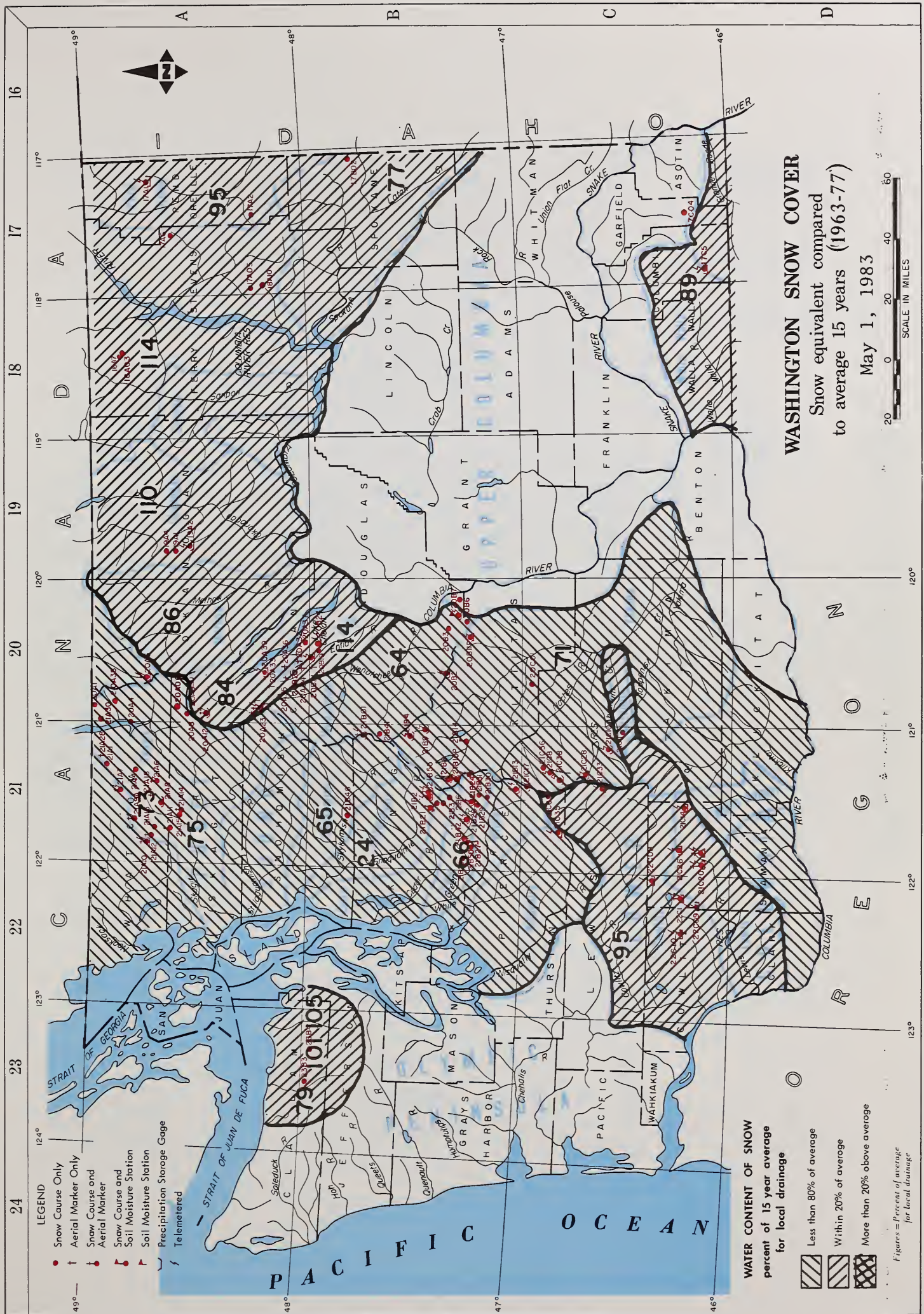
Dock Butte	21A11A	B	36N	BE	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Marlen Lake	21A9A	23	38N	BE	3600
Mount Blum	21A18a	27	38N	10E	5800
Rocky Creek	21A12AP	20	37N	BE	2100
Schreibers Meadow	21A10AP	18	37N	BE	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21ABP	25	37N	9E	4500

OLYMPIC PENINSULA

Dungeness River					
Deer Park	2384	1	28N	5W	5200
Elwha River					
Hurricane	2383	36	29N	7W	4500

LEGEND

21A7	Snow Course Only
21A7a	Aerial Marker Only
21A7A	Snow Course And Aerial Marker
21A7M	Snow Course And Soil Moisture Station
21A7m	Soil Moisture Station
21A7P	Snow Course And Precipitation Storage Gage
21A7SP	Precipitation Storage Gage
21A7SP	Snow Pillow



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NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.	NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
UPPER COLUMBIA DRAINAGE						LOWER COLUMBIA DRAINAGE					
Bayer Mountain	17A2	7	31N	43E	5250	Spruce Springs	17C4	9	8N	40E	5700
Bunchgrass Meadow	17A1SP	24	37N	44E	5000	Tauchet No. 2	17C5SP	6	7N	40E	5530
Summit G. S.	18A7	20	39N	35E	4600	June Lake	22C09SP	26	8N	5E	3200
Ragged Ridge	17B02	12	27N	45E	3333	Lone Pine Shelter	21C26SP	8	9N	7E	3800
Baird	17A6	19	36N	42E	3215	Plains of Abraham	22C15SP	35	9N	5E	4400
Stranger Mountain	17A5	26	31N	38E	4590	Spencer Meadow	21C20SP	16	8N	7E	3400
Togo	18A10	6	29N	38E	3370	Surprise Lakes	21C13SP	14	7N	8E	4250
Mutton Creek No. 1	19A1	30	37N	24E	5700	Coyuse Pass	21C6	15	16N	10E	5300
Mutton Creek No. 2	19A4	19	37N	24E	6000	Pigtail Peak	21C33SP	11	13N	11E	5900
Salmon Meadows	19A2SP	33	37N	24E	4500	Palato Hill	21C14SP	36	10N	10E	4500
Harts Pass	20A5SP	7	37N	18E	6500	Sheep Canyon	22C10SP	12	8N	4E	4050
Lyman Lake	20A23SP	18	31N	16E	5900	Strawberry	22C08SP	9	10N	6E	3280
Park Creek Ridge	20A12SP	18	34N	16E	4600	PUGET SOUND DRAINAGE					
Rainy Pass	20A9SP	21	35N	17E	4780	Nisqually River					
Mirror Lake	20A39	30	31N	18E	5600	Paradise Park (New)	21C35SP	13	15N	8E	5500
Brief	20B19	34	28N	19E	1600	Corral Pass	21B13SP	30	18N	11E	6000
Entiat Meadows	20A33a	28	31N	17E	4540	Aitstrip	21B24P	18	20N	11E	1800
Entiat River Trail	20A34a	2	29N	17E	3325	Charley Creek	21B25	27	21N	8E	1200
Fox Camp	20A36a	17	30N	18E	6510	Cougar Mountain	21B42SP	21	21N	9E	3200
Pape Ridge	20B20	22	29N	18E	3340	Grass Mountain	21B27	14	20N	8E	2900
Pape Ridge Snow Pillow	20B24SP	22	29N	18E	3540	Grass Mountain No. 2	21B28	12	20N	8E	2100
Pugh Ridge	20A32a	34	30N	18E	6725	Lester Creek	21B29	36	20N	10E	3100
Shady Pass	20A37	20	29N	19E	6200	Lynn Lake	21B30	22	20N	8E	4000
Snow Brushy	20A35a	21	30N	17E	3910	Sawmill Ridge	21B31	5	19N	11E	4700
Tommy Creek	20B21a	10	28N	18E	4900	Stampede Pass	21B10SP	25	21N	11E	3860
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240	Twin Camp	21B30	18	19N	11E	4100
Blewett Pass No. 2	20B2SP	35	22N	17E	4270	Cedar River					
Stevens Pass	21B1SP	14	26N	13E	4070	City Cabin	21B3	10	21N	10E	2390
Trough #2	20B25SP	10	20N	20E	5310	Mt. Gardner	21B21P	30	22N	10E	3300
Beehive Springs	20B3	12	21N	19E	4400	Alpine Meadow	21B48	31	27N	9E	3500
Stemilt Slide	20B6	30	21N	20E	5000	Olallie Meadows	21B2P	19	22N	11E	3625
Upper Wheeler	20B7SP	30	21N	20E	4400	Olallie Meadows East	21B55SP	20	22N	11E	3700
Ahtanum R. S.	21C11	24	12N	14E	3100	Snoqualmie River					
Big Boulder Creek	21B9SP	35	23N	14E	3200	Beaver Creek Trail	21A4	35	39N	12E	2200
Bumping Lake	21C8P	23	16N	12E	3450	Beaver Pass	21A1	9	39N	12E	3680
Bumping Lake New	21C36	13	16N	12E	3400	Brown Top	21A28a	26	40N	12E	4000
Bumping Ridge	21C38SP	9	15N	12E	4600	Devils Park	20A4	34	38N	16E	5900
Fish Lake	21B45P	28	24N	14E	3371	Freezeout Creek Trail	20A1	14	40N	14E	3500
Green Lake	21C10SP	3	12N	13E	6000	Freezeout Meadows (New)	20A38	8	40N	16E	5000
Grouse Camp	20B11SP	29	21N	19E	5385	Graffiti Creek	20A06	25	36N	16E	3500
Lake Cle Elum	21B14M	15	20N	14E	2200	Meadows Cabins	20A8	29	36N	14E	1900
Morse Lake	21C17SP	6	16N	11E	5400	New Hazen Lake	21A30	19	40N	14E	2800
Tunnel Avenue	21B8P	13	21N	11E	2450	Thunder Basin	20A07	10	35N	14E	4200
White Pass (East Side)	21C28SP	2	13N	11E	4500						

LEGEND  
 21A7 Snow Course Only  
 21A7a Aerial Marker Only  
 21A7A Snow Course And Aerial Marker  
 21A7M Snow Course And Soil Moisture Station  
 21A7P Soil Moisture Station  
 21A7P Snow Course And Precipitation Storage Gage  
 21A7P Precipitation Storage Gage  
 21A7SP Snow Pillow

## OLYMPIC PENINSULA

Deer Park	2384	1	28N	5W	5200
Hurricane	2383	36	29N	7W	4500

## Baker River

Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	5800
Rocky Creek	21A12AP	20	37N	8E	2100
Schreibers Meadow	21A10AP	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8P	25	37N	9E	4500

## WATER SUPPLY OUTLOOK

State of Washington

May 1, 1983

The water supply outlook for Washington remains the same as last month. Near average to above average supplies are forecast for most of the state. Below average streamflow is forecast for the Cedar, White, and Green rivers on the west slope of the Cascades, with near average streamflow expected in the rest of Washington. The snowpack is fairly good for May 1 except for the west flank of the Cascades from Pierce County north to Canada. May precipitation was poor west of the Cascades and average to above average on the east side. Reservoir storage is good for May 1.

### SNOW COVER

The mountain snowpack began its spring melt process during April. The Cascade snow cover now ranges from 24% on the Snoqualmie to 95% of average on the Cowlitz. North central Washington has a snowpack 110% on the Okanogan and 114% on the Kettle. In the northeastern part of the state the Pend Oreille snow cover is 95% of average, while the Spokane is 77%. The Blue Mountain snowpack in southeast Washington is near average. The snow cover in the Olympics is 80 to 100% of average.

### PRECIPITATION

May precipitation in western Washington was 40 to 50% of normal. The above average trend that started this past winter in north central Washington continued in May with precipitation amounts of 150 to 180% of normal. Eastern Washington precipitation was near 80% and the east side of the Cascades was near normal for May.

### RESERVOIR STORAGE

Reservoir storage is generally near average to above average in most Washington irrigation reservoirs. Franklin D. Roosevelt Lake has been lowered to near 60% of average May 1 contents in order to regulate the anticipated snowmelt runoff that will come during the next several months. The five principal irrigation reservoirs on the Yakima system are currently storing 917,000 acre-feet which is 122% of the average May 1 amount.

### STREAMFLOW

Streamflow during May was mostly above average east of the Cascades except for those rivers in extreme eastern Washington. Volume flow on the Spokane, Pend Oreille, Palouse and Walla Walla ranged from 70 to 90% of normal during the month. West side streams produced flows average to above at the south end of the Cascades and below average from the central Cascades north. Streamflows this next summer are expected to be near average over most of the state except for the Cedar and Green rivers which should be near 70%.

# STREAMFLOW FORECASTS - MAY, 1983

The following summarized runoff forecasts are based principally on mountain snowcover and on the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify the streamflow. The forecasts are a cooperative effort of the Soil Conservation Service and the National Weather Service.

Basin, Stream and Station	Forecast Runoff 1983	Seasonal Streamflow in Thousands of Acre-Feet				
		% 15-yr. Avg.	Fore cast period	1982	1981	1980
						15-yr. Average 63-77
<u>COLUMBIA BASIN</u>						
<u>COLUMBIA RIVER SYSTEM</u>						
Columbia River	42600	100	May-Sept	45265	35923	42781
at Birchbank <u>1/</u>	33300	99	May-July	35235	29192	33630
	23234	99	May-June	23736	22730	23469
Columbia River	61900	101	May-Sept	63703	52308	61521
at Grand Coulee <u>1/</u>	50500	100	May-July	51925	43612	50545
	37775	100	May-June	37635	35163	37775
Columbia River	68000	101	May-Sept	69986	56911	67032
bl. Rock Island Dam <u>1/</u>	55800	100	May-July	57367	48166	55565
	41600	100	May-June	42026	39066	41600
Columbia River	92100	101	May-Sept	85504	78563	90972
at The Dalles, OR <u>1/</u>	76100	100	May-July	70678	65325	75997
	58714	100	May-June	53611	53710	58714
<u>PEND OREILLE RIVER SYSTEM</u>						
Pend Oreille River	10600	78	May-Sept	11276	11197	13596
bl. Box Canyon	9570	78	May-July	9819	10042	12287
	7979	78	May-June	7851	8702	10230
<u>KETTLE RIVER SYSTEM</u>						
Kettle River	2087	129	May-Sept	1937	1422	1615
nr. Laurier	1950	128	May-July	1795	1334	1523
	1764	130	May-June	1467	1190	1357
Colville River	89	106	May-Sept	91	76	84
at Kettle Falls	77	106	May-July	77	66	73
	68	105	May-June	60	57	65

1/ Observed flow corrected for storage in any of the following reservoirs which are above the station: Kootenay Lake, Hungry Horse, Flathead Lake, Pend Oreille Lake, F. D. Roosevelt Lake, Lake Chelan, Coeur d'Alene Lake, Brownlee, Noxon Reservoir and pumpage at F. D. Roosevelt Lake.

Basin, Stream and Station	Forecast Runoff 1983	Seasonal Streamflow in Thousands of Acre-Feet					15-yr. Average 63-77
		%	Fore				
		15-yr. Avg.	cast period	1982	1981	1980	
<u>SPOKANE RIVER SYSTEM</u> **							
Spokane River	1640	80	May-Sept		1557	1675	2102
at Post Falls	1560	80	May-July		1464	1507	1966
	1466	80	May-June		1279	1365	1833
<u>OKANOGAN RIVER SYSTEM</u>							
Similkameen River	1250	87	May-Sept		1143	1340	1439
nr. Nighthawk	1160	87	May-July		1020	1251	1339
	969	87	May-June		1540	1108	1114
Okanogan River	1513	95	May-Sept			1418	1593
nr. Tonasket	1367	95	May-July		1324	1290	1439
	1120	95	May-June		1015	1107	1179
<u>METHOW RIVER SYSTEM</u>							
Methow River	981	105	May-Sept		717	915	938
nr. Pateros	883	102	May-July		655	854	863
	731	102	May-June		533	750	717
<u>CHELAN RIVER SYSTEM</u>							
Chelan River	1260	111	May-Sept		817	933	1139
at Chelan 3/	1110	113	May-July		699	833	982
	865	118	May-June		522	672	736
Stehekin River	890	108	May-Sept		594	643	823
at Stehekin	755	111	May-July		475	547	683
	570	115	May-June		335	425	497
Entiat	254	112	May-Sept		168	187	227
nr. Ardenvoir	232	114	May-July		150	171	204
	183	115	May-June		119	143	159
<u>WENATCHEE RIVER SYSTEM</u>							
Wenatchee River	1050	90	May-Sept				1172
at Plain	946	92	May-July				1032
	723	93	May-June				778
Wenatchee River	1750	110	May-Sept		1021	1201	1594
at Peshastin	1554	110	May-July		908	1087	1413
	1185	110	May-June		702	893	1077
Stemilt Basin	134*	97	May-Sept				138*
Icicle Creek	369	100	Apr-Sept				371
nr. Leavenworth	349	102	Apr-July				342
	290	104	Apr-June				279

\* Thousands of Miners' Inches

\*\* Forecasts made by Jerry Beard, Soil Conservation Service, Boise, Idaho.

2/ Observed flow corrected for storage in Coeur d'Alene Lake and diversions by Spokane Valley Farms Company and Rathdrum Prairie Canals.

3/ Observed flow corrected for storage in Lake Chelan.

Basin, Stream and Station	Forecast Runoff 1983	Seasonal Streamflow in Thousands of Acre-Feet					15-yr. Average 63-77
		% 15-yr. Avg.	Fore cast period	1982	1981	1980	
<u>YAKIMA RIVER SYSTEM</u>							
Yakima River	98	80	May-Sept		68	78	122
nr. Martin <u>4/</u>	89	81	May-July		56	66	110
	76	84	May-June		46	58	91
Yakima River	690	83	May-Sept		537	552	827
at Cle Elum <u>5/</u>	620	84	May-July		480	476	735
	535	89	May-June		400	406	603
Yakima River	1664	90	May-Sept		922	1235	1815
nr. Parker <u>6/</u>	1441	90	May-July		787	1134	1601
	1206	90	May-June		688	1011	1340
Kachess River	87	83	May-Sept		56	77	105
nr. Easton <u>7/</u>	82	84	May-July		48	70	98
	72	88	May-June		42	57	82
Cle Elum River	370	87	May-Sept		252		423
nr. Roslyn <u>8/</u>	340	90	May-July		221	252	379
	275	91	May-June		183	216	302
Bumping River	137	104	May-Sept		64	101	132
nr. Nile <u>9/</u>	126	106	May-July		56	92	119
	101	109	May-June		48	83	93
American River	121	106	May-Sept			95	114
nr. Nile	110	107	May-July			88	103
	89	109	May-June			79	82
Tieton River	234	105	May-Sept		122	176	223
at Tieton Dam <u>10/</u>	198	108	May-July		105	144	183
	153	110	May-June		82	118	139
Naches River	810	105	May-Sept		332	514	771
nr. Naches <u>11/</u>	720	105	May-July		292	479	683
	610	110	May-June		251	422	555
Ahtanum Creek	43	111	May-Sept				39
nr. Tampico <u>12/</u>	40	113	May-July				35
	44	118	May-June				29

4/ Observed flow corrected for storage in Lake Keechelus.

5/ Observed flow corrected for storage in Keechelus, Kachess, and Cle Elum Lakes and diversion by Kittitas Canal.

6/ Observed flow corrected for storage in Keechelus, Kachess, Cle Elum, Bumping, and Rimrock Lakes and diversions by Roza, Union Gap, New Reservation, Old Reservation, and Sunnyside Canals.

7/ Observed flow corrected for storage in Lake Kachess.

8/ Observed flow corrected for storage in Lake Cle Elum.

9/ Observed flow corrected for storage in Bumping Lake.

10/ Observed flow corrected for storage in Rimrock Lake.

11/ Observed flow corrected for storage in Bumping and Rimrock Lakes and diversions by Tieton, Selah Valley, Wapatox Canals, and City of Yakima.

12/ Observed flow of North and South Forks (Combined).

Basin, Stream and Station	Forecast Runoff 1983	Seasonal Streamflow in Thousands of Acre-Feet					15-yr. Average 63-77
		%	Fore	1982	1981	1980	
		15-yr. Avg.	cast period				
<u>LOWER COLUMBIA RIVER SYSTEM</u>							
Mill Creek	7.4	96	May-Sept				7.7
nr. Walla Walla	7.0	94	May-July				7.5
	6.9	94	May-June				7.3
Lewis River	915	96	May-Sept		729		958
at Ariel <u>13/</u>	765	97	May-July		604		788
	630	97	May-June		498		652
Cowlitz River	1550	90	May-Sept				1718
bl. Mayfield Dam	1301	90	May-July				1446
	1030	90	May-June				1145
Cowlitz River	2090	96	May-Sept		1628		2169
at Castle Rock <u>14/</u>	1732	96	May-July		1363		1804
	1375	96	May-June		1113		1432
<u>OLYMPIC PENINSULA</u>							
<u>DUNGENESS RIVER SYSTEM</u>							
Dungeness River	154	108	May-Sept				143
nr. Sequim	124	110	May-July				113
	87	110	May-June				79
<u>ELWHA RIVER SYSTEM</u>							
Elwha River	480	100	May-Sept				480
nr. Port Angeles	381	100	May-July				381
<u>PUGET SOUND</u>							
<u>SKAGIT RIVER SYSTEM</u>							
Skagit River	1773	88	May-Aug				2017
at Newhalem <u>15/</u>	1909	88	May-Sept				2161
	1580	89	May-July				1776
	1148	89	May-June				1290
<u>GREEN RIVER SYSTEM</u>							
Green River	163	70	May-Sept				233
bl. Howard Hanson Dam <u>16/</u>	141	70	May-July				201
	121	70	May-June				173
<u>CEDAR RIVER SYSTEM</u>							
Cedar River	52	70	May-Sept				74
nr. Cedar Falls	46	70	May-July				65
	38	71	May-June				54

13/ Observed flow corrected for storage in Lake Merwin, Yale, and Swift Reservoirs.

14/ Observed flow corrected for storage in Mayfield Reservoir.

15/ Observed flow corrected for storage in Diablo, Ross, and Gorge Reservoirs.

16/ Observed flow corrected for storage in Howard Hanson Dam.

# COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

The following tabulation of Washington stream basins presents the water content of the snow about May 1, 1983, as percent of the same date in 1982 and 1981 and average of record.

Tributary Basin	No. of Courses Average	1983 Snow Water expressed as percent of		
		1982	1981	1963-77 Avg.
<u>UPPER COLUMBIA BASIN</u>				
Pend Oreille	13	79	254	95
Kettle	8	91	168	114
Spokane	7	82	223	77
Okanogan	29	84	207	110
Methow	1	91	134	86
Chelan	4	80	130	84
Entiat	7	87	234	114
Wenatchee	5	53	301	64
Yakima	5	73	138	71
<u>LOWER COLUMBIA BASIN</u>				
Mill Creek	1	66	202	89
Cowlitz	1	86	-	95
<u>PUGET SOUND</u>				
Green	4	42	171	66
Snoqualmie	1	24	105	24
Skykomish	2	62	346	65
Skagit	11	77	232	75
Baker	7	69	212	73
<u>OLYMPIC PENINSULA</u>				
Morse Creek	1	82	303	101
Elwha	1	77	342	79
Dungeness	1	88	686	105

# RESERVOIR STORAGE - 1000 Acre Feet

BASIN OR STREAM	RESERVOIR	USABLE <sup>1/</sup> CAPACITY	1983	Measured May 1		
				1982	1981	Normal*
<u>COLUMBIA</u>						
Spokane	Coeur d'Alene Lake	225.1	182.3	247.5	248.0	238.4
Columbia	Franklin D. Roosevelt Lake	5232.0	523.4	412.9	3198.4	867.8
Columbia	Banks Lake	714.9	650.7	618.7	672.7	442.8
Okanogan	Conconully Reservoir	13.0	13.1	11.6	9.1	7.7
Okanogan	Conconully Lake	10.5	10.4	10.2	10.0	8.0
Chelan	Lake Chelan	676.1	281.0	201.8	224.9	219.0
<u>YAKIMA</u>						
Yakima	Keechelus Lake	157.8	139.6	152.8	159.6	113.8
Kachess	Kachess Lake	239.0	227.1	221.2	240.3	194.2
Cle Elum	Lake Cle Elum	436.9	393.2	184.4	365.1	295.9
Bumping	Bumping lake	33.7	8.8	7.5	34.3	11.6
Tieton	Rimrock Lake	198.0	148.3	178.0	198.3	136.6
<u>PUGET SOUND</u>						
Skagit	Ross Reservoir	1404.1	656.8	632.1	1086.3	711.5
Skagit	Diablo Reservoir	90.6	85.5	87.2	87.9	86.4
Skagit	Gorge Reservoir	9.8	8.4	8.0	7.9	8.1

<sup>1/</sup> Based on Active Storage

\* 15-yr. Average 1963-77

# PRECIPITATION 1/

## Division Average Observations and Departures

Drainage Divisions	FALL		WINTER		SPRING	
	Sept-Oct Observed	1982 <u>2/</u> Departure	Nov. 1982 - Observed	Mar. 1983 Departure	April 1983 Observed	Departure
Columbia in Canada	5.40	+0.38	13.08	-2.43	1.74	+0.03
Pend Oreille - Spokane	4.85	0.81	18.97	+1.42	1.50	-0.32
Northeastern Washington	2.73	+0.25	14.10	+4.70	2.22	+0.96
Southeastern Washington	4.19	+1.68	12.11	+1.68	1.24	-0.29
Central Washington	6.27	+1.52	8.27	+2.99	0.61	-0.04
North Central Washington	2.35	+0.76	9.02	+2.48	1.27	+0.42
Northwest Slope Cascades	12.32	-0.89	52.37	-3.02	2.64	-4.00
Southwest Slope Cascades	10.16	+1.48	44.41	+2.77	2.34	-2.25

Northeastern Washington	- Lower Spokane, Colville, Sanpoil and Lower Kettle Drainages.
Southeastern Washington	- Touchet, Tucannon and Palouse Drainages.
Central Washington	- Yakima, Wenatchee and Chelan Drainages
North Central Washington	- Methow and Okanogan Drainages.
Northwest Slope Cascades	- Puget Sound Drainages.
Southwest Slope Cascades	- Lower Columbia Drainages.

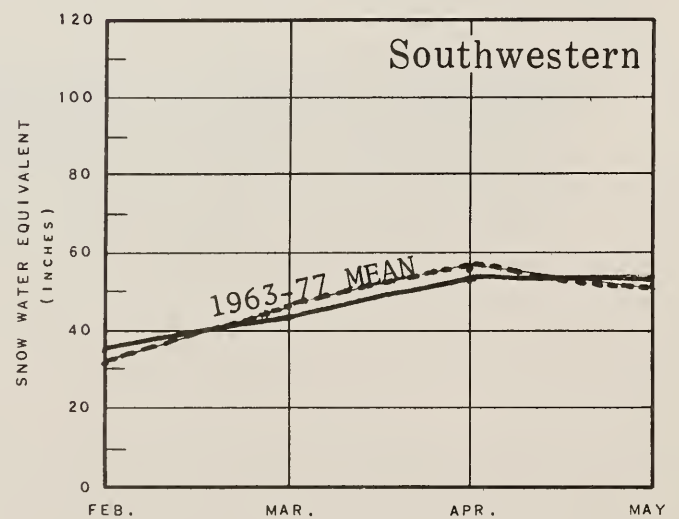
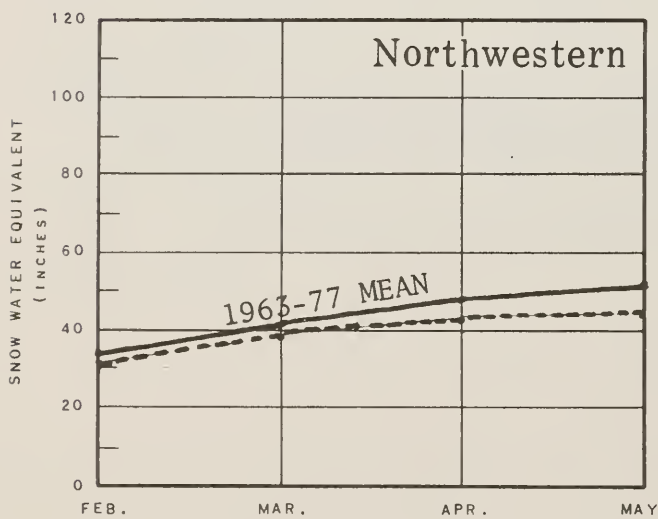
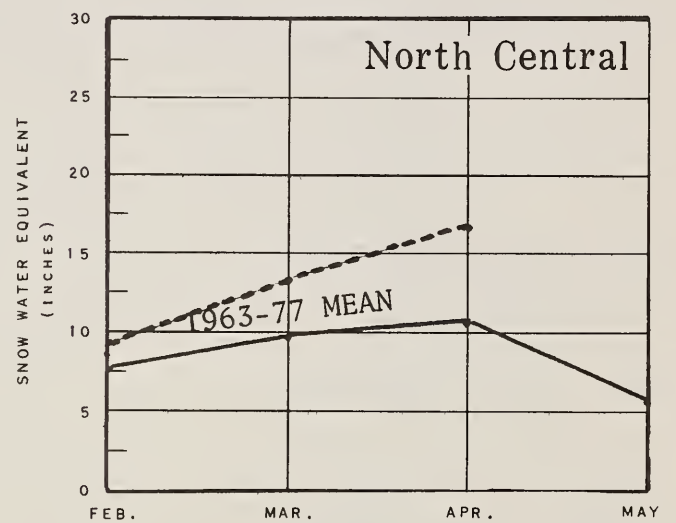
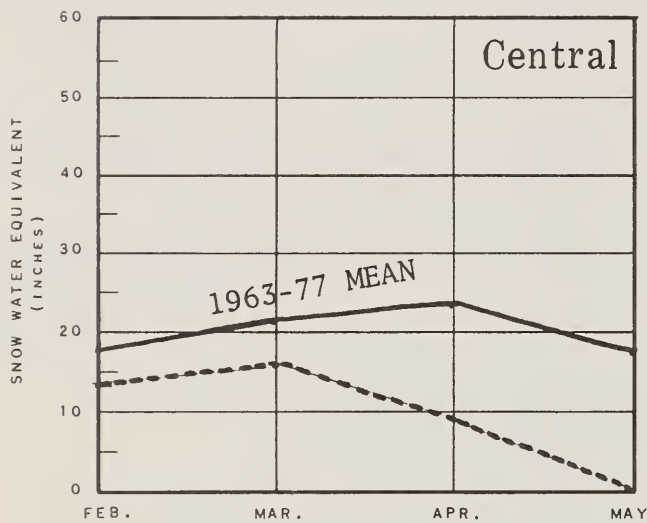
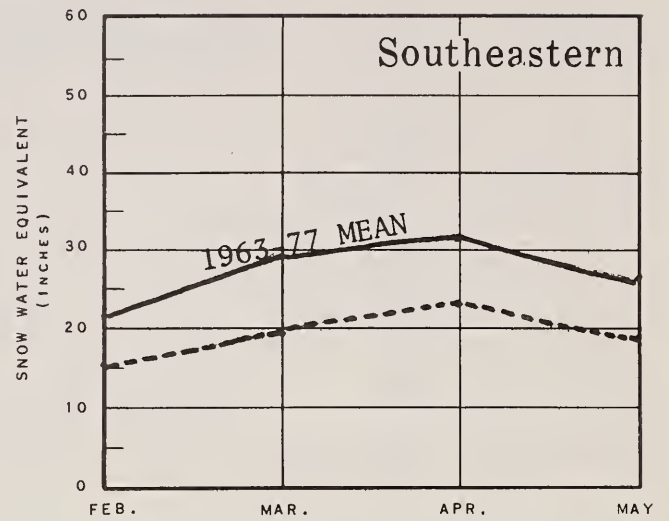
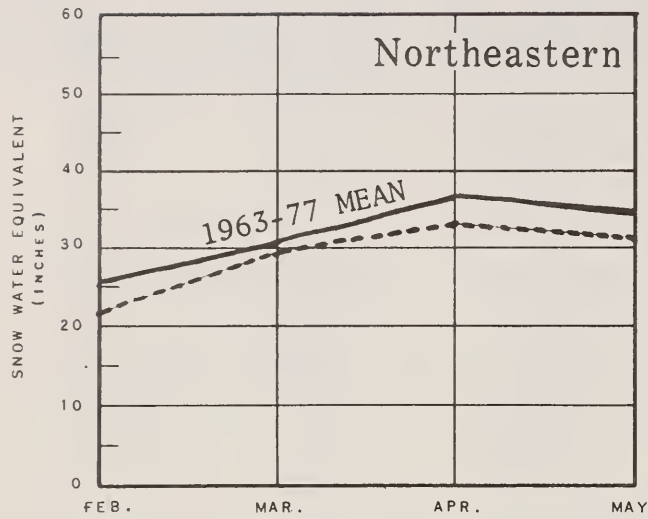
1/ Preliminary analysis by National Weather Service from data furnished by Meteorological Services of Canada and the National Weather Service.

1/ Departure from 15-year (1958-72) drainage division average.

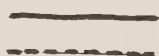
# WASHINGTON SNOW COVER

1983

## DRAINAGE AREAS



Average  
1983

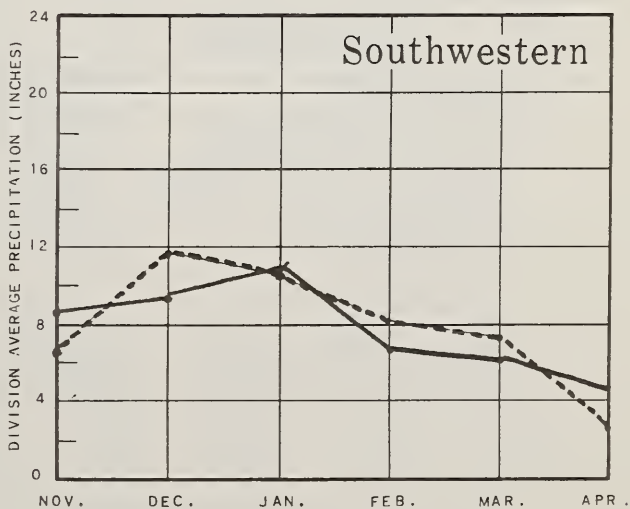
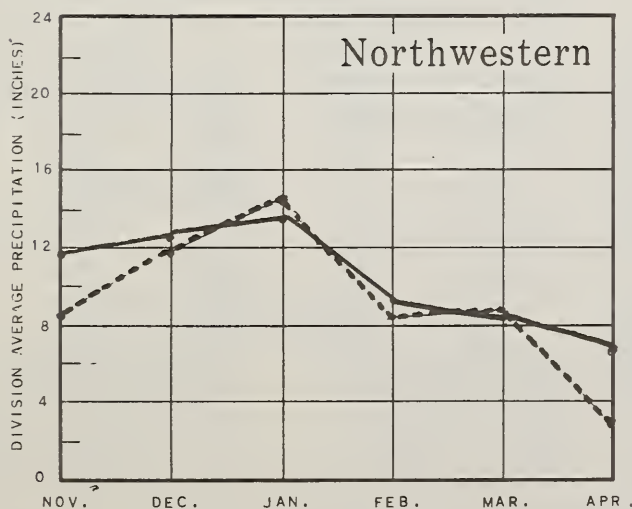
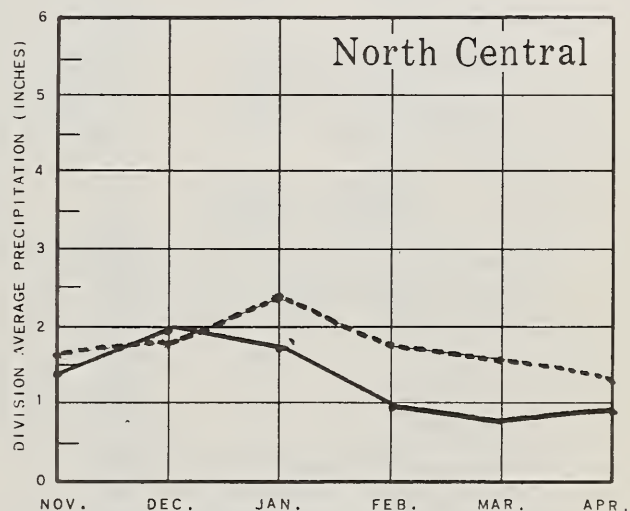
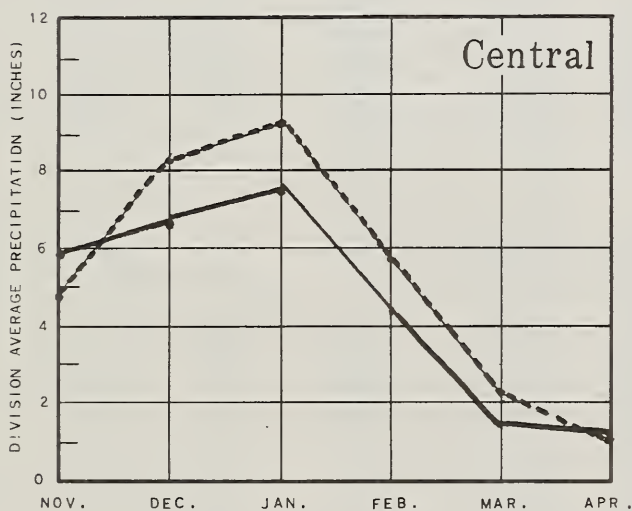
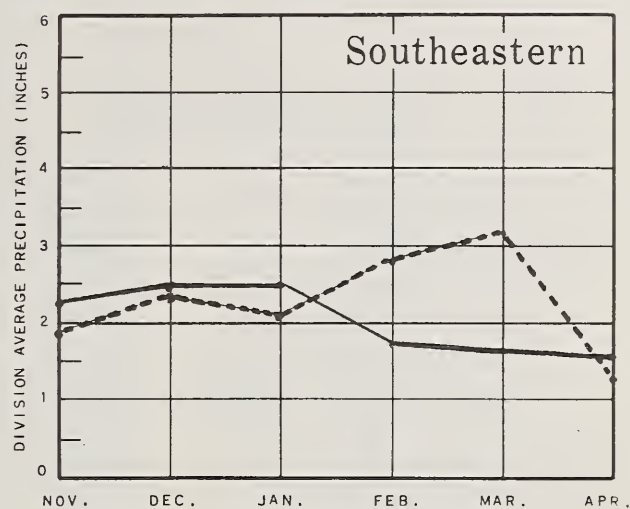
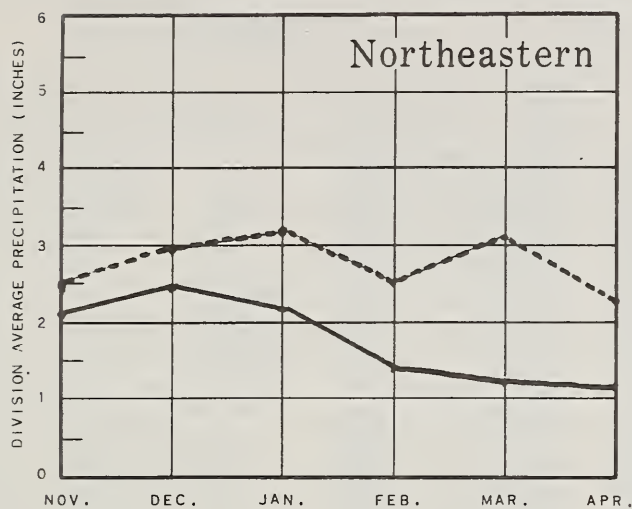


*Selected Snow Survey Courses by Soil Conservation Service*

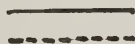
# WASHINGTON VALLEY PRECIPITATION

1983

## DRAINAGE AREAS



Average  
1983



Preliminary Analysis by National Weather Service

## SNOW DATA TO MAY 1, 1983 - APPENDIX 1

## SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	Number	Elevation				Last Year	Average #

## U P P E R C O L U M B I A D R A I N A G E

PEND OREILLE RIVER

Baree Creek	15B11	5500	4/28	97	43.7	51.5	49.5
Baree Midway	15B16	4600	4/28	76	28.9	38.6	35.1
Baree Trail	15B15	3800	4/28	0	0.0	3.7	1.8
Benton Meadow	16A02	2344	4/29	0	0.0	0.0	0.0
Benton Spring	16A03	4900	4/29	39	19.5	17.7	16.7
Boyer Mountain	17A02	5250	4/27	105	31.8	25.7	25.2
Brush Creek Timber	14A13	5000	4/28	21	6.6	9.4	8.1
Heart Lake Trail	14C10	4800	4/30	20	9.0	25.2	19.1
Hoodoo Basin	15C10	6000	4/30	96	45.7	68.5	55.6
Hoodoo Creek	15C01	5900	4/30	90	41.4	61.8	52.0
Lookout	15B02	5250	4/14	84	34.8	41.4	38.6
			4/28	69	30.6	37.6	35.4
Nelson	2D04-Can	3050	4/29	13	5.6	13.7	7.0*
Schweitzer Bowl	16A06	4500	4/28	79	36.3	40.1	26.8
Schweitzer Ridge	16A05	6100	4/28	126	58.7	61.3	47.5
Smith Creek	16A01	4800	4/28	106	51.0	58.0	47.4

KETTLE RIVER

Barnes Creek	2B06-Can	5300	4/29	47	19.2	23.4	20.6*
Big White Mtn.	2E03-Can	5500	4/30	61	25.7	21.7	20.9*
Bluejoint Mtn.	2E06-Can	7500	4/29	94	42.4	37.7	29.5*
Carmi	2E02-Can	4100	4/30	0	0.0	2.6	1.9*
Farron # 1	2B02-Can	4000	4/29	30	12.6	13.2	8.5*
Farron # 2	2B02A-Can	4000	4/29	32	14.2	13.7	9.6*
Graystoke Lake	2F04-Can	5950	4/27	45	16.1	18.9	19.3*
Monashee Pass	2E01-Can	4500	4/29	28	12.1	16.5	12.9*
Trapping Creek Upper	2E04-Can	4450	5/1	13	4.7	7.7	5.9*

SPOKANE RIVER

Above Burke	15B08	6100	4/28	29	13.4	20.6	19.7
Copper Ridge	16B02	4800	4/25	43	20.5	16.7	25.7
Forty-nine Meadows	15B03	5000	4/28	54	20.6	28.0	26.9
Fourth of July Summit	16B03	3100	4/28	0	0.0	1.6	-
Granite Peak	15B13A	6000	4/28	99	37.0	50.0	47.6
Lookout	15B02	5250	4/14	84	34.8	41.4	38.6
			4/28	69	30.6	37.6	35.4
Lost Lake	15B14A	6000	4/28	123	49.4	63.6	62.5
Lower Sands Creek	16B01	3400	4/28	31	13.1	15.9	18.3
Sherwin	16C01	3200	4/29	0	0.0	10.0	7.2

# Average based on 1963-77 average

\* Average for years of record

## SNOW DATA TO MAY 1, 1983 - APPENDIX 2

SNOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average <sup>†</sup>
OKANOGAN RIVER							
Aberdeen Lake	1F01A-Can	4300	4/29	10	3.5	5.7	1.8*
Blackwall Mountain	2G03-Can	6250	5/3	70	31.5	37.5	37.3*
Bouleau Lake	2F21-Can	4580	4/30	43	17.3	18.0	13.4*
Brenda Mine	2F18-Can	4800	4/28	67	12.0	13.7	10.0*
Brookmere	2C01-Can	3200	4/30	9	2.7	7.2	5.5*
Enderby	2F04-Can	6250	5/2	107	50.4	54.1	42.9*
Esperon Creek Lower	2F15-Can	4400	5/1	28	11.3	12.7	9.3*
Esperon Creek Middle	2F14-Can	4700	5/1	33	14.9	14.1	12.3*
Esperon Creek Upper	2F13-Can	5400	5/1	44	21.0	19.8	18.1*
Freezeout Mdw. New	20A38	5000	4/28	82	37.1	31.8	40.3
Grayback Res.	2F08-Can	5225	4/27	33	10.9	10.4	7.9*
Graystoke Lake	2F04-Can	5950	4/27	45	16.1	18.9	19.3*
Hamilton Hill	2G06-Can	4900	4/27	22	8.3	15.1	13.0*
Harts Pass	20A05A	6500	4/27	110	44.2	48.7	51.5
Isintok Lake	2F11-Can	5510	4/30	15	4.3	8.5	6.9*
Lightning Lake	3D02-Can	4000	4/29	26	9.8	13.5	10.7*
Lost Horse Mtn.	2G04-Can	6300	5/2	30	9.7	11.7	10.4*
McCulloch	2F03-Can	4200	4/30	2	0.6	4.4	2.7*
Missezula Mountain	2G05-Can	5100	4/28	17	5.1	9.0	6.1*
Mission Creek	2F05-Can	6000	4/27	63	24.3	24.8	21.7*
Monashee Pass	2E01-Can	4500	4/29	28	12.1	16.5	12.9*
Mount Kobau	2F12-Can	5950	4/30	52	20.1	16.5	12.9*
Mutton Creek # 1	19A01	5700		Not Measured		18.8	11.3
Mutton Creek # 1 SP	19A11	6000		Not Measured		15.4	13.9
Nickel Plate Mtn.	2G02-Can	6200	4/28	26	8.3	9.3	8.0*
Oyama Lake	2F19-Can	4400	4/28	11	3.9	5.0	3.0*
Postill Lake	2F07-Can	4500	4/29	20	7.0	8.0	6.6*
Rusty Creek	19A03	4000		Not Measured		2.5	0.8
Salmon Meadows	19A02	4500		Not Measured		10.4	6.2
Silver Star Mtn.	2F10-Can	6050	4/30	80	36.8	37.2	28.4*
Summerland Res.	2F03-Can	4200	4/29	16	6.3	8.2	6.7*
Sunday Summit	2G01A-Can	4300	4/29	0	0.0	1.2	1.0*
Trout Creek	2F01-Can	4700	4/28	8	2.7	6.7	5.1*
Vaseux Creek	2F20-Can	4600	4/28	20	7.6	5.0	2.6*
White Rocks Mtn.	2F09-Can	6000	4/29	64	29.0	26.6	24.0*

METHOW RIVER

Harts Pass	20A05A	6500	4/27	110	44.2	48.7	51.5
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CHWLAN LAKE BASIN

Little Meadows +	20A24a	5275	4/28	100	42.0	-	65.7
Lyman Lake +	20A23A	5900	4/28	156	62.0	-	82.0
Park Creek Ridge	20A12A	4600	4/28	85	36.0	52.5	31.7
Rainy Pass	20A09	4780	4/28	90	39.0	42.8	47.5

# Average based on 1963-77 average

\* Average for years of record

+ Snow water equivalent estimated from aerial stadia observation.

## SNOW DATA TO MAY 1, 1983 - APPENDIX 3

## SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	Number	Elevation				Last Year	Average #
<u>ENTIAT RIVER</u>							
Entiat Meadows +	20A33a	4540	4/30	102	46.9	50.4	35.7
Entiat River Trail +	20A34a	3325	4/30	0	0.0	15.2	3.0
Fox Camp +	20A36a	6510	4/30	158	72.7	69.8	64.1
Pope Ridge	20B20	3540	4/28	25	10.3	17.8	9.8
Pugh Ridge +	20A32a	6725	4/30	104	47.8	42.9	30.8
Shady Pass	20A37	6200	4/28	74	33.8	37.3	31.6
Snow Brushy +	20A35a	3910	4/30	79	32.4	41.6	29.4
Tommy Creek +	20B21a	4900	4/30	37	17.0	23.0	21.7
<u>WENATCHEE RIVER</u>							
Berne-Mill Creek	21B23	2925	4/28	36	16.5	31.8	23.9
Berne-Mill Creek New	21B41	3240	4/28	19	9.1	26.0	19.8
Blewett Pass No. 2	20B02	4270		SNOTEL		15.1	10.8
Chiwaukum G.S.	20B16	1810		Not Measured		4.1	1.5
Fish Lake	21B04	3371		SNOTEL		32.4	28.0
Lake Wenatchee	20B05	1970		Not Measured		7.7	2.7
Lyman Lake	20A23A	5900	4/28	156	62.0	-	82.0
Merritt	20B18	2140		Not Measured		10.5	5.5
Stevens Pass	21B01	4070	4/28	84	40.5	58.6	57.5
Stevens Pass Sand Shed	21B45	3700	4/28	47	22.0	40.0	37.3
<u>SQUILCHUCK CREEK</u>							
Beehive Springs	20B03	4400	4/13	23	9.9	-	-
			5/1	Not Measured		0.9	2.2
Scout-A-Vista	20B04	3400	4/13	10	3.7	-	-
			5/1	Not Measures		0.0	0.3
<u>STEMILT CREEK</u>							
Stemilt Slide	20B06	5000	4/13	48	19.7	-	-
			5/1	Not Measured		8.4	7.8
Upper Wheeler	20B07	4400		SNOTEL		0.0	1.3
<u>COLOCKUM CREEK</u>							
Trough # 2	20B25	5310		SNOTEL		16.5	New
<u>YAKIMA RIVER</u>							
Ahtanum R.S.	21C11	3100	4/25	0	0.0	0.0	-
Big Boulder Creek	21B09	3200		SNOTEL		10.9	10.9
Blewett Pass # 2	20B02	4270		SNOTEL		15.1	10.8
Bumping Lake	21C08	3450	4/13	37	14.8	12.4	13.8
			4/28	19	8.1	8.0	10.2
Bumping Lake New	21C36	3400	4/14	47	19.9	18.8	19.6
			4/28	32	13.9	13.6	15.2

# Average based on 1963-77 average

+ Snow water equivalent estimated from aerial stadia observation.

## SNOW DATA TO MAY 1, 1983 - APPENDIX 4

## SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	Number	Elevation				Last Year	Average #
<u>YAKIMA RIVER (Cont.)</u>							
Cayuse Pass	21C06	5300		Not Measured		94.0	98.1
Corral Pass	21B13	6000		SNOTEL		53.1	42.6
Fish Lake	21B04	3371		SNOTEL		32.4	28.0
Lake Cle Elum	21B14M	2200	4/15	Not Measured		1.7	2.7
Morse Lake	21C17	5400		SNOTEL		72.8	61.9
Olallie Meadows	21B02	3625	4/29	27	12.8	53.7	53.4
Stampede Pass	21B10	3860	4/14	77	33.4	55.4	42.9
			5/1	51	28.6	52.8	43.4
Tunnel Avenue	21B08	2450	4/18	12	4.6	23.2	23.9
			5/1	Not Measured		20.3	17.5
White Pass (E. Side)	21C28	4500	4/13	71	28.2	29.7	26.9
			4/27	61	26.3	30.7	27.6

AHTANUM CREEK

Ahtanum R.S.	21C11	3100	4/25	0	0.0	0.0	-
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LOWER COLUMBIA DRAINAGEMILL CREEK

High Ridge	18D19	4150	5/2	63	24.0	36.4	27.0
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COWLITZ RIVER

Cayuse Pass	21C06	5300		Not Measured		94.0	98.1
White Pass (E. Side)	21C28	4500	4/13	71	28.2	29.7	26.9
			4/27	61	26.3	30.7	27.6

PUGET SOUND DRAINAGEWHITE PASS

Cayuse Pass	21C06	5300		Not Measured		94.0	98.1
Corral Pass	21B13	6000		SNOTEL		53.1	42.6
Morse Lake	21C17	5400		SNOTEL		72.8	61.9

GREEN RIVER

Airstrip	21B24	1800	4/29	0	0.0	0.0	2.1
Charley Creek	21B25	1200	4/29	0	0.0	0.0	-
Cougar Mtn.	21B42	3200		SNOTEL		22.3	20.7
Grass Mtn. # 2	21B27	2900	4/29	0	0.0	10.5	-
Grass Mtn. # 3	21B28	2100	4/29	0	0.0	0.0	-
Lester Creek	21B29	3100	4/29	12	5.0	23.2	-
Lynn Lake	21B50	4000	4/29	0	0.0	24.5	-
Sawmill Ridge	21B31	4700	4/29	52	22.0	39.8	-
Stampede Pass	21B10	3860	4/14	77	33.4	55.4	42.9
			5/1	51	28.6	52.8	43.4
Twin Camp	21B30	4100	4/29	26	10.8	29.3	-

# Average based on 1963-77 average

## SNOW DATA TO MAY 1, 1983 - APPENDIX 5

SNOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average <sup>#</sup>

SNOQUALMIE RIVER

Olallie Meadows	21B02	3625	4/29	27	12.8	53.7	53.4
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SKYKOMISH RIVER

Stevens Pass	21B01	4070	4/28	84	40.5	58.6	57.5
Stevens Pass Sand Shed	21B45	3700	4/28	47	22.0	40.0	37.3

SKAGIT RIVER

Beaver Creek Trail	21A04	2200	4/27	0	0.0	8.9	7.3
Beaver Pass	21A01	3680	4/27	64	28.3	35.9	34.5
Brown Top Ridge +	21A28a	6000	4/27	136	50.4	66.8	74.7
Devils Park	20A04	5900	4/27	98	40.4	47.2	50.4
Freezeout Creek Trail	20A01	3500	4/28	12	4.9	13.1	10.2
Freezeout Meadows New	20A38	5000	4/28	82	37.1	31.8	40.3
Granite Creek	21A29A	3500	4/28	18	7.3	16.6	18.2
Harts Pass	20A05A	6500	4/27	110	44.2	48.7	51.5
Klesilkwa	3D03A-Can	3700	4/22	0	0.0	15.0	7.3*
Lightning Lake	3D02-Can	4000	4/29	26	9.8	13.5	10.9*
Lyman Lake	20A23A	5900	4/28	156	62.0	-	82.0
Meadow Cabins	20A08	1900	4/27	0	0.0	2.1	1.9
New Hozomeen Lake	21A30	2800	4/28	0	0.0	8.3	10.5
New Tashme	3D01A-Can	2500	4/30	0	0.0	7.9	3.3*
Rainy Pass	20A09	4780	4/28	90	39.0	42.8	45.7
Thunder Basin	20A07	4200	4/28	53	19.6	26.8	26.2

BAKER RIVER

Dock Butte	21A11A	3800	4/29	110	48.0	79.0	79.3
Easy Pass	21A07A	5200	4/29	153	73.0	104.0	97.6
Jasper Pass	21A06A	5400	4/29	176	85.0	111.0	99.8
Marten Lake	21A09A	3600	4/29	142	68.0	92.0	87.0
Mount Blum +	21A18a	5800	4/29	144	69.0	86.0	76.1
Rocky Creek	21A12A	2100	4/29	0	0.0	33.0	28.4
Schreibers Meadow	21A10A	3400	4/29	70	34.0	68.0	70.5
S. F. Thunder Creek	21A14A	2200	4/29	0	0.0	0.5	2.0
Watson Lakes	21A08A	4500	4/29	118	57.0	77.0	77.7

O L Y M P I C P E N I N S U L ADUNGENESS RIVER

Deer Park	23B04	5200	4/27	59	25.4	28.9	24.2
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MORSE CREEK

Cox Valley	23B14	4500	5/1	96	45.8	55.6	45.3
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ELWHA RIVER

Hurricane	23B03	4500	4/30	52	22.2	28.7	28.2
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# Average based on 1963-77 average

\* Average for years of record

+ Snow water equivalent estimated from aerial stadia observation.

## SNOTEL READINGS, 1983 - APPENDIX 1

SNOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	Number	Elevation				Last Year	Average †
<u>PEND OREILLE RIVER</u>							
Bunchgrass Meadow	17A01	5000	4/15		39.5		
			5/1		40.9		
<u>OKANOGAN &amp; METHOW RIVERS</u>							
Harts Pass	20A05	6500	4/15		51.1		
			5/1		50.5		
Salmon Meadow	19A02	4500	4/15		33.3		
			5/1		17.1		
<u>CHELAN LAKE BASIN</u>							
Lyman Lake	20A23	5900	4/15		68.7		
			5/1		64.0		
Mirror Lake	20A39	5600	4/15		-		
			5/1		-		
Park Creek Ridge	20A12	4600	4/15		49.5		
			5/2		41.5		
Rainy Pass	20A09	4780	4/15		47.0		
			5/1		42.6		
<u>ENTIAT RIVER</u>							
Pope Ridge	20B20	3450	4/15		14.5		
			5/1		1.9		
		GT	4/28	25	10.6	(3.8)	
<u>WENATCHEE RIVER</u>							
Blewett Pass	20B02	4270	4/15		21.0		
			5/1		11.9		
		GT	4/28	24	12.5	(14.5)	
Lyman Lake	20A23	5900	4/15		68.7		
			5/1		64.0		
Stevens Pass	21B01	4070	4/15		24.5		
			5/1		16.3		
		GT	4/28	63	29.1	(18.2)	
Trough	20B25	5310	4/15		24.9		
		GT	4/13	63	25.3	(24.8)	
			5/1		18.9		
<u>COLOCKUM CREEK</u>							
Trough	20B25	5310	4/15		24.9		
		GT	4/13	63	25.3	(24.8)	
			5/1		18.9		

GT = Ground Truth measurement at SNOTEL site

NOTE: ( ) following Ground Truth measurement is SNOTEL reading on same date.

## SNOTEL READINGS, 1983 - APPENDIX 2

## SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	Number	Elevation				Last Year	Average †

STEMILT CREEK

Upper Wheeler	20B07	4400	4/15		19.6		
		GT	4/13	45	17.5	(19.8)	
			5/1		13.6		

YAKIMA RIVER

Big Boulder Creek	21B09	3200	4/15		15.6		
			5/1		4.8		
		GT	4/29	23	11.3	(6.8)	
Bumping Ridge	21C38	4600	4/15		-		
			5/1		-		
Corral Pass	21B13	6000	4/15		24.4		
			5/1		19.2		
Fish Lake	21B04	3371	4/15		-		
			5/1		-		
		GT	4/26	58	29.6	(-)	
Green Lake	21C10	6000	4/15		35.2		
			5/1		34.8		
Grouse Camp	20B11	5385	4/15		29.4		
			5/1		30.9		
		GT	4/27	60	29.8	(25.6)	
Morse Lake	21C17	5400	4/15		81.7		
			5/1		80.5		
White Pass (E.S.)	21C28	4500	4/15		23.9		
			5/1		20.7		

AHTANUM CREEK

Green Lake	21C10	6000	4/15		35.2		
			5/1		34.8		

TOUCHET RIVER

Touchet # 2	17C55	5530	4/15		39.2		
		GT	4/18	69	28.1	(37.0)	
			5/1		31.9		

LEWIS RIVER

June Lake	22C09	3200	4/15		-		
			5/1		-		
Lone Pine Shelter	21C26	3800	4/15		46.8		
			5/1		42.5		
Plains of Abraham	22C01	4400	4/15		-		
			5/1		-		

GT = Ground Truth measurement at SNOTEL site

NOTE: ( ) following GT measurement is SNOTEL reading on same date.

## SNOTEL READINGS, 1983 - APPENDIX 3

## SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	Number	Elevation				Last Year	Average †
<u>LEWIS RIVER (Cont.)</u>							
Sheep Canyon	22C10	4050	4/15		-		
			5/1		-		
Spencer Meadow	21C20	3400	4/15		32.0		
			5/1		22.6		
Surprise Lakes	21C13	4250	4/15		58.7		
			5/1		51.8		
<u>COWLITZ RIVER</u>							
Pigtail Peak	21C33	5900	4/15		48.0		
			5/1		46.1		
Potato Hill	21C14	4500	4/15		-		
			5/1		-		
Sheep Canyon	22C10	4050	4/15		-		
			5/1		-		
Strawberry Landing	22C08	3280	4/15		40.2		
			5/1		37.9		
<u>NISQUALLY RIVER</u>							
Paradise Park	21C35	5500	4/15		-		
			5/1		-		
		GT	4/23	144	72.0 (-)		
<u>WHITE RIVER</u>							
Corral Pass	21B13	6000	4/15		24.4		
			5/1		19.2		
Morse Lake	21C17	5400	4/15		81.7		
			5/1		80.5		
<u>GREEN RIVER</u>							
Cougar Mountain	21B42	3200	4/15		0.2		
			5/1		0.0		
Stampede Pass	21B10	3860	4/15		39.4		
			5/1		33.5		
		GT	5/1	65	35.0 (33.5)		
<u>SNOQUALMIE RIVER</u>							
Olallie Meadows East	21B55	3960	4/15		51.6		
			5/1		46.2		



# Agencies Assisting with Snow Surveys

## GOVERNMENT AGENCIES

### Canada:

Ministry of the Environment, Water  
Investigations Branch, Victoria, British Columbia

### States:

Washington State Department of Ecology  
Washington State Department of Natural Resources

### Federal:

Department of the Army  
Corps of Engineers  
U. S. Department of Agriculture  
Forest Service  
U. S. Department of Commerce  
NOAA, National Weather Service  
U. S. Department of the Interior  
Bonneville Power Administration  
Bureau of Reclamation  
Geological Survey  
National Park Service

## PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.  
Pacific Power and Light Company  
Puget Sound Power and Light Company  
Washington Water Power Company

## OTHER PUBLIC AGENCIES

Okanogan Irrigation District  
Wenatchee Heights Irrigation District

## MUNICIPALITIES

City of Tacoma  
City of Seattle

*Other organizations and individuals furnish valuable information for  
snow survey reports. Their cooperation is gratefully acknowledged.*

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